

WHAT IS CLAIMED IS:

1. A remote video recording and retrieval system comprising:

a first computing device having access to a tuner, to a computer network, and to a video recording mechanism, said first computing device being effective for encoding a video signal into at least one predetermined video data encoding format; and

a second computing device having access to said first computing device via said computer network, and having access to a first data store remote from said first computing device, said second computing device being effective for submitting a user ID identifying itself and for submitting recording instructions to said first computing device for recording a televised program;

said first computing device being effective for accessing and recording said televised program via said tuner and said video recording mechanism, said first computing device being further effective placing a first visible ID stamp corresponding to said user ID on a visible section of the recorded televised program and transferring a video encoded data version of said recorded televised program to said first data store.

2. The system of claim 1, wherein said first visible ID is said user ID.

3. The system of claim 1 wherein said first computing device further places a second visible ID stamp on said recorded televised program, said second visible stamp ID identifying at least one of the recorded broadcast station, the date on which the recording took place, the time at which recording took place, and the name of the program recorded.

4. The system of claim 1 wherein said first computing device is a computer daughter board for use in a general purpose computer.

5. The system of claim 4 wherein said tuner and said video recording mechanism are integrated into said computer daughter board.

6. The system of claim 5 wherein said computer daughter board further integrates a network interface.

7. The system of claim 5 wherein said video recording mechanism includes a data encoder.

5 8. The system of claim 1 wherein said first computing device includes a record of at least one partner ID identifying a partner computing device and accepts submission of recording instructions only from said partner computing device;

said second computing device including an identifying hardware ID matching said at least one partner ID.

10 9. The system of claim 8 wherein said second computing device submits said identifying hardware ID to said first computing device for approval prior to submitting said recording instructions.

10. The system of claim 8 wherein said second computing device is a second computer daughter board for use in a second general purpose computer

15 11. The system of claim 1 wherein said second computing device initiates retrieval of said video encoded data file after recording of said televised program by said first computing device.

12 The system of claim 1 wherein said computer network is the Internet.

13 The system of claim 12 wherein said first computing device automatically
20 initiates transfer of said video encoded data file to said first data store via the Internet.

14. The system of claim 13 wherein said first computing device transfers said video encoded data file using the Internet file transfer protocol, FTP, utility.

15. The system of claim 14 wherein said first data store is internal to said second computing device.

16. The system of claim 1 wherein said first computing device deletes said video encoded data file upon completion of the transfer of said video encoded data to said
5 first data store.

17. The system of claim 1 wherein said first data store is remote to said second computing device.

18. The system of claim 17 wherein said second computing device accesses said first data store via the Internet.

19. The system of claim 1 wherein said second computing device specifies a maximum file size for said video encoded data file created by said first computing device.

20. The system of claim 19 wherein said first computing device divides a recorded televised program into a plurality of contiguous program segment, encoded, data files of size not greater than said maximum file size.

21. The system of claim 20 wherein said first computing device further generates a master sequence file specifying the order in which said plurality of program segment data files should be played in order to produce a contiguously viewing of said recorded televised program.

22. The system of claim 21 wherein said first computing device transfers encoded data files and said master sequence file in succession to said first memory store.

23. The system of claim 22 wherein said first computing device deletes each of said plurality of program segment data files and said master sequence file as their respective transfer to said first data store is complete.

24. The system of claim 23 wherein said first computing device verifies completion of a file transfer by viewing the contents of a first data base prior to deleting any file at said first computing device, and annotates in said first data base the transfer or deletion of any file.

25. The system of claim 20 wherein each of said plurality of program segment data files is transferred to said first data store as a plurality of file fragment data packets and monitors acknowledge signals from said first data store confirming receipt of each data packet, said first computing device maintaining a log of each acknowledged data packet to identify the complete file transfer of each of said program segment data file and to respond to a transmission interruption by reinitiating transmission of only the data packets of a program segment data file that have not already been acknowledged.

26. The system of claim 25 wherein said first computing device deletes each of said plurality of encoded video data files upon transfer of all of its constituent file fragment data packets to said first data store.

27. The system of claim 1 wherein said first computing device has a second data store, and said first computing device responds to an inquiry from said second computing device by transmitting to said second computing device a list of scheduled televised programs locally available to said first computing device, an alterable preferred video encoding format selection field, a listing of available free space on said second data store, and an expected available recording time based on the currently selected preferred video encoding format and the currently available free space.

28. The system of claim 27 wherein said second computing system issues recording instructions to said first computing device by selecting a program for recording from said list of scheduled televised programs.

29. The system of claim 27 wherein said first computing device permits the selection of at least one of a resolution quality factor and image screen size for each

video encoding format, each combination of selected resolution quality factor, image screen size, and video encoding format resulting in a different amount of memory space required per minute of video sequence.

30. The system of claim 1 wherein said first computing device provides a verification logon sequence for said second computing device prior to permitting access to said second computing device.

31. The system of claim 1 wherein said first computing device includes a timer and a database of program instructions, said first computing device comparing program start times with said timer and responding to a matching time by adjusting said tuner to the instructions in said database associated with the matching time and activating said recording mechanism, said first computing device further using said database to identify conflicts in recording instructions.

32. The system of claim 31 wherein said recording mechanism is a video cassette recording mechanism coupled to said tuner and having a communication link with said first computing device, said communication link being effective for transmitting start, stop, record, rewind, forward, and play commands from said first computing device to said video cassette recording mechanism.

33. The system of claim 32 wherein said video cassette recording mechanism further includes a video-out terminal coupled to a video-in terminal of said first computing device, said first computing device responding to the finishing of a recording session by rewinding a video cassette in said video cassette recording mechanism and playing the recorded program onto said video-out terminal, said first computing device being effecting for encoding the signal on its video-in terminal by using a corresponding video encoding format as determined by said database, said first computing device storing said encoded image in a second data store.

34. The system of claim 33 wherein said first computing device initiates transfer of said video encoded data file to said first memory store after all of said recorded program has been encoded.

35. The system of claim 33 wherein said first computing device initiates transfer of encoded video data to said first memory store prior to completion of the encoding of said recorded program.

36. The system of claim 1 wherein said first computing device has access to multiple tuners for recording multiple programs airing simultaneously, said first computing device further being effective for alerting said second computing device when the number of simultaneous programs scheduled for recording exceeds the number of available tuners.

37. The system of claim 36 wherein said first computing device has access to multiple recording mechanisms, said multiple tuners having a one-to-one correspondence with said multiple recording mechanisms.

38. The system of claim 37 wherein said multiple recording mechanisms are at least one of a plurality of independently controllable video cassette recorders and a plurality of independently controllable digital recording units.

39. The system of claim 36 wherein said first computing device includes a second memory store divided into multiple memory spaces having a one-to-one correspondence with said multiple tuners.

40. The system of claim 39 wherein said recording mechanism is a digital recording unit multiplexed among said multiple tuners, said digital recording unit being effective for producing a video encoded data representation of an applied tuner and for storing said video encoded data in the applied tuner's corresponding memory space within said second memory store.

41. The system of claim 39 wherein said second memory store includes a contiguous composite memory space divided into an upper memory space and a lower memory space and a buffer memory space between said upper and lower memory spaces,

5 said multiple tuners including a first tuner corresponding to said upper memory and a second tuner corresponding to said lower memory, said first tuner having an associated first priority level and said second tuner having an associated second priority level different from said first priority level, the video encoded data corresponding to said first tuner being written in said upper memory space in ascending order toward said lower memory space, and the video encoded data
10 corresponding to said second tuner being written in said lower memory space in descending order toward said upper memory space,

15 said first computing device being effective for initiating a memory conflict routine when one of the video encoded data corresponding to said first tuner and the video encoded data corresponding to said second tuner is encroaches within said buffer memory space, said memory conflict routine being effective for deactivating the recording of the one of said first and second tuners having the lower associated priority level.

20 42. The system of claim 41 wherein said memory conflict routine is further effective for permitting the one of said first and second tuners having the higher associated priority level to expand its corresponding memory space into the memory space of the tuner having the lower associated priority level.

25 43. The system of claim 39 wherein each of said digital memory spaces is a separate digital memory storing device, said first computing device being effective for monitoring the amount of available memory within each of said digital memory storing devices and effective for identifying free memory storing devices corresponding to tuners that are not currently active, said first computing device further responding to an active tuner filling to capacity its memory storing device by assigning a different free memory storing device to said active tuner.

44. The system of claim 43 wherein each of said multiple tuners has an associated distinct priority level and said first computing device includes a low memory conflict routine responsive to the condition wherein all tuners are active and a first active tuner fills to capacity its corresponding memory storing device, said memory conflict
 5 routine identifying and deactivating the tuner having the lowest priority level and assigning the memory storing device of the lowest priority tuner to said first active tuner.

45. The system of claim 1 wherein said first computing device verifies that said second computing device has preauthorization prior to accepting any recording
 10 instruction from said second computing device, said first computing device responding to an authorization verification of said second computing device by displaying a list of scheduled televised programs available for recording, each of said listed televised programs being part of a database including the televised program's airing time and frequency tuning requirements, said second computing
 15 device instructing said first computing device by making selections from said listing.

46. The system of claim 45 wherein said second computing device is charged a service fee for every recording session submitted to said second computing device.

47. A media recording and encoding apparatus comprising:

20 a tuner for receiving broadcast information;

a record and encode mechanism coupled to said tuner and effective for recording and encoding said broadcast information to produce an encoded data file representation of said broadcast information;

a network interface including an access node coupled to a computer network
 25 for receiving a logon request including a user ID and recording instructions;

a data store coupled to said encode and record mechanism and to said network access node;

said apparatus being effective for activating said tuner and said record and encode mechanism in accordance with said recording instructions, posting a user name corresponding to said user ID on the resultant encoded data file, and storing said resultant encoded data file in said data store.

5 48. The apparatus of claim 47 wherein said computer network is the Internet and said apparatus is further effective for transmitting said data file via said network access node to a predetermined destination on the Internet.

49. The apparatus of claim 47 wherein said user name is said user ID.

10 50. The apparatus of claim 47 being further effective for posting secondary information on said resultant encoded data file, said secondary information being at least one of the identity of the recorded broadcast network, the recorded broadcast program, the date on which the recording took place, and the time at which the recording took place.

15 51. The apparatus of claim 47 wherein said broadcast information is video information and said user name is posted on a visible section of the recording constituted by said resultant encoded data file.

20 52. The apparatus of claim 47 wherein said broadcast information are radio broadcast and said user name is posted as one of a computer synthesized, audio pronunciation of said user name and a text sequence attached to said resultant encoded data file.

53. The apparatus of claim 47 further including a computer daughter board, said tuner, record and encode mechanism, and network interface being integrated onto said computer daughter board.

25 54. The apparatus of claim 47 further including a record of at least one partner ID identifying a partner computing device, said logon request further including a hardware ID of the computing device submitting the logon request, said apparatus

being effective for refusing access said computing device in response to said hardware ID not matching said at least one partner ID.

55. The apparatus of claim 47 wherein said record and encode mechanism includes a video tape recording unit for recording said broadcast information and includes a video capture circuit for encoding recorded broadcast information from said video
5 video tape recording unit, said user name being posted on a visible section of the recorded and encoded broadcast information.

56. The apparatus of claim 47 wherein said tuner, record and encode mechanism, network access node, and second data store are integral parts of one of a video
10 cassette recorder and a digital video recorder.

57. The apparatus of claim 47 wherein said apparatus further includes a telephone access node for receiving signals from a touchtone telephone, said apparatus initiating a first mode of operation response to a predetermined sequence of key tones from said touchtone and initiating a second mode of operation in response to
15 the absence of said predetermined sequence of key tones;

said first mode of operation being effective for accepting recoding schedule instructions via said touchtone telephone;

said second mode of operation being effective for transmitting a verbal request to the receiver of said touchtone telephone requesting a verbal message
20 from said touchtone telephone, said second mode being further effective for recording said verbal message from said touchtone telephone.

58. The apparatus of claim 57 wherein said second mode of operation is further effective for digitally encoding said verbal message and transmitting the resultant digital file via said network access node to a second predetermined destination on
25 the Internet.

59. The apparatus of claim 58 wherein said digital file is sent to said second predetermined destination via electronic mail.

60. The apparatus of claim 47 wherein said tuner is one of a television tuner and a radio tuner.

61. The apparatus of claim 47 wherein said tuner is one of a plurality of tuners and said second data store further comprising multiple memory storage units having a one-to-one correspondence with each of said plurality of tuners;

each tuner and its corresponding memory storage unit sharing a common status rating indicating if the tuner is active, scheduled for later use, or free, indicating that the tuner is inactive and not scheduled for later use, an active rating being of higher value than a scheduled rating, and a scheduled rating being of higher value than a free rating;

each tuner and its corresponding memory storage unit further sharing an adjustable priority level, said priority level having a low default value that is selectively adjusted when a tuner is scheduled for later use;

said apparatus being effective for monitoring the available memory space remaining in an active tuner's corresponding memory storage unit and effective for initiating a memory reassignment routine in response to said available memory space being below a predetermined value, said memory reassignment routine being effective for identifying a set of memory storage units having the lowest status rating and assigning the storage unit of lowest priority within the set to said active tuner.

62. A method of remotely recording and retrieving broadcast information comprising:

a. using a first local computing device to connect to a second remote computing device via a computer network;

b. using said first computing device to submit a user ID and to submit recording instructions to said second computing device, said recording instructions including a selection of a broadcast station and a recording time window specifying a future time;

c. using said second computing device to tune a broadcast receiver to receive said selected broadcast station and to initiate recording of received signals from said selected broadcast station during said recording time window;

5 d. encoding said received signals into a predetermined encode format to produce an encoded digital representation of said received signals and placing a user name corresponding to said user ID on said encoded digital representation;

e. using said second computing device to transmit said encoded digital representation to a predetermined destination via said computer network; and

10 f. accessing said encoded digital representation from said predetermined destination location.

63. The method of claim 62 wherein said user name is selected to be said user ID.

64. The method of claim 62 wherein step d includes placing a data field on said encoded digital representation, said data field being selected to include at least one of the identity of the recorded broadcast station, the recorded broadcast program, the date on which the recording took place, and the time at which the recording took place.

65. The method of claim 62 wherein said broadcast station is a television station and said user name is posted on a visible section of the recording.

20 66. The method of claim 62 wherein said broadcast station is a radio station and said user name is posted as one of a computer synthesized, audio pronunciation of said user name and a text sequence attached to said encoded digital representation of said received signals.

25 67. The method of claim 62 further including providing a computer daughter board within said second remote computing device and providing said daughter board with a tuner, a network interface, and an encoder.

68. The method of claim 62 further providing said second remote computer device with a record of at least one partner ID identifying a partner computing device and providing said first local computing device with a hardware ID;

5 said step b further using said first computing device to submit said hardware ID to said second computing device, and requiring that said second computing device confirm that said hardware ID matches said at least one partner ID before continuing to step c.

69. The method of claim 62 wherein said computer network is the Internet.

10 70. The method of claim 62 wherein said broadcast receiver receives television broadcast signals.

71. The method of claim 62 wherein said broadcast receiver receives radio broadcast signals.

15 72. The method of claim 62 wherein said first computing device is further used to submit a maximum file size to said second computing device, and said encoded digital representation is divided into multiple data files of size not greater than said maximum file size.

73. The method of claim 72 wherein said multiple data files are transmitted to said predetermined destination in step e.

20 74. The method of claim 72 wherein step d further includes generating a master sequence file indicating the order in which said multiple data files should be accessed.

75. The method of claim 62 wherein said predetermined destination is remote from said first computing device and accessible by said first computing device via said computer network.

76. The method of claim 62 wherein step e includes transmitting said encoded signal representation to said predetermined destination via electronic mail.

77. The method of claim 62 wherein step e includes transmitting said encoded signal representation to said predetermined destination via file transfer protocol,
5 FTP.

78. The method of claim 62 wherein each set of recording instructions specifying the selection of a broadcast station and a corresponding recording time window is defined as a recording session, and step b includes submitting multiple recording sessions to said second computing device, said second computing device assigning a
10 different memory space to each of said multiple recording sessions in a one-to-one correspondence, step d including storing the encoded signal representation of a recording session in its corresponding memory space.

79. The method of claim 78 wherein step b includes using said first computing device to selectively assign a priority level to said multiple recording session, and second computing device assigning a default priority level to all recording sessions
15 not receiving an assigned priority level from said first computing device.

80. The method of said 78 wherein each of said multiple recording session includes a priority level and step d includes reassigning a first memory space corresponding to a first recording session having a first priority level to a second recording session
20 having a second priority level higher than said first priority level.

81. The method of claim 80 wherein said first recording session stores data in said first memory space starting from a first end of said first memory space, and said second recording session stores data in said first memory space starting from a second end of said first memory space opposite said first end.

25 82. The method of claim 80 wherein said second recording session has a correspondingly assigned second memory space, and said first memory space is

reassigned to said second recording session in response to said second recording session filling a predetermined percentage of said second memory space.

83. A method of broadcast program reservation and retrieval comprising the following steps:

- 5 a. maintaining a user database of authorized users.
- b. requesting user identification information from a prospective user;
- c. using said user database to authenticate said prospective user and not proceeding to step e unless said prospective user is authenticated as an authorized user by said identification information and said user database;
- 10 e. accepting recording instructions from said authorized user, storing said recording instruction in a scheduling database, and associating said recording instructions with said authorized user;
- f. reviewing said scheduling database and instigating a recording session as determined by said scheduling database, said recording session including the encoding of a recorded broadcast program into a predetermined encode format;
- 15 g. notifying said authorized user of completion of said recording session.

84. The method of claim 83 wherein step a further includes associating a distinct hardware ID with a plurality of electronic accessories, and not permitting access to step e unless a prospective user requests access using one of said plurality of
20 electronic accessories having one of said distinct hardware IDs.

85. The method of claim 84 wherein step a further includes correlating each of said electronic accessories with a corresponding authorized user in said user database, and step c further does not proceed to step e if said authorized user does not use its correlated electronic accessory when requesting access.

25 86. The method of claim 84 wherein said electronic accessory is selected from a list including a computer daughter board and an electronic ID key device externally attachable to a computing device.

87. The method claim 83 wherein step e further includes accepting an encode format selection.

88. The method of claim 87 wherein said encode format selection is said predetermined encode format of step f.

5 89. The method of claim 87 wherein step f further includes comparing said predetermined encode format with said accepted format selection and converting said predetermined encode format to said accepted format selection when they are not the same.

10 90. The method claim 87 wherein said accepted encode format selection is one of an audio recording and video recording data encode format.

91. The method of claim 83 further including:

maintaining a broadcast format database correlating the default broadcast format for different geographic locations;

15 step e further includes accepting information regarding the geographic location of said authenticated user, determining if the default broadcast format of the program to be recorded is the same as the broadcast format correlating to the authenticated user's accepted geographic location, and if they are not the same requiring that step f include the step of converting the recorded program to the default broadcast program associated with the authenticated user's accepted
20 geographic location.

92. The method of claim 91 wherein said broadcast format database includes at least geographic locations correlating to the use of PAL and NTSC default broadcast formats.

93. The method of claim 83 further including:

25 maintaining a broadcast format database correlating the default broadcast format for different geographic locations;

step e further includes accepting a selected broadcast format from said authenticated user, determining if the default broadcast format of the program to be recorded is the same as said selected broadcast format, and if they are not the same requiring that step f include the step of converting the recorded program to said selected broadcast format.

94. The method of claim 83 wherein step e further includes providing a list of geographic regions and accepting a selected geographic region from said list, providing a listing of broadcast programs available for recording within said selected geographic region.

95. The method of claim 94 wherein the recording session of step f is conducted within said selected geographic region.

96. The method of claim 83 wherein step f further includes incorporating at least one of a first identifier of said authenticate user and a second identifier showing at least part of said accepted recording instructions in the encoded recording.

97. The method of claim 96 said first or second identifier is incorporated as a readable text section of said encoded recording.

98. The method of claim 96 wherein said encoded recording is a video recording and said first or second identifier is incorporated into said encoded recording as a visible message when the recording is played.

99. The method of claim 96 wherein said encoded recording is a purely audio recording and said first or second identifier is incorporated into said encoded recording as an audible message when the recording is played.

100. The method of claim 83 wherein step g further includes transmitting the recording to said authenticated user as a data file.